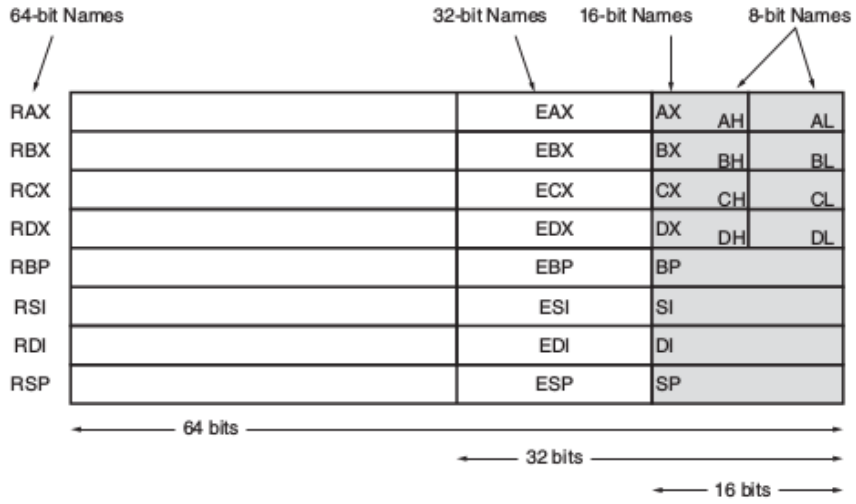

RAX(ACCUMULATOR)

Note that if an 8- or 16-bit register is addressed, only that portion of the 32-bit register changes without affecting the remaining bits.

0-The accumulator is used for instructions such as multiplication,etc

1- multipurpose register

2-may also hold the offset address of a location in the memory system

RBX (BASED-OFFSET REG)

0-sometimes holds the offset address of a location in the memory

1-system in all versions of the microprocessor.

RCX (COUNT)

0-general-purpose register

1-hold the offset address of memory data

2- also Hold address memory data.

3- a-The shift and rotate instructions use CL as the count.

b-the repeated string instructions use CX.

c-and the LOOP/LOOPD instructions use either CX or ECX and RCX in 64-bit mode .

RDX (DATA)

0- general-purpose register that holds a part of the result from a multiplication or part of the dividend before a division.
1- also Hold address memory data.

RBP (base pointer)

0-points to a memory location in all versions of the microprocessor for memory data transfers.

RSI (SOURCE INDEX)

0-The source index register often addresses source string data for the string instructions. Like RDI.

general-purpose register.

RDI (destination index)

0-often addresses string destination data for the string instructions

RSP (stack pointer)

0-RSP addresses an area of memory called the stack.

1- The stack memory stores data through this pointer and is explained later in the text with the instructions that address stack data.

RIP(instruction pointer)

0-points to the next instruction in a program, is used by the microprocessor to find the next sequential instruction in a program.

1-The instruction pointer can be modified with a jump or a call instruction.

RFLAGS

0- carry flag , sign flag , zero flag , etc

1-any arthemitic or logic operations have a flage .

Ex: using 1`s complement

0000 – 0001 subtraction two binary num

0000 – 0001 = 01110 (-1) == -(0001)

the final carry is 0 that means the num = -1

the – sign witch has red color stored in a sign flag .

you must know the 1`s complemment https://www.youtube.com/watch?v=kx8DFNf6pQU&index=57&list=PLBlnK6fEyqRjMH3mWf6kwqiTbT798eAOm

2-flag change after many arithmetic and logic Instructions execute.

3-The flags never change for any data transfer or program control operation.

4-Some of the flags are also used to control features found in the microprocessor.